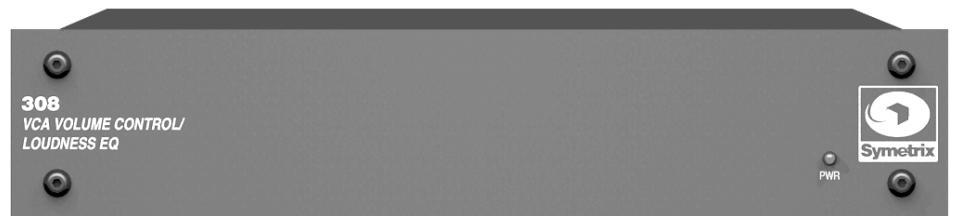


308 VCA Volume Control/ Loudness EQ



U S E R G U I D E

308 VCA Volume Control/Loudness EQ User's Guide

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Symetrix, Inc.

6408 216th St. SW

Mountlake Terrace WA 98043

USA

Tel: **425.778.7728**

Fax: **425.778.7727**

Web: www.symetrixaudio.com

Email: symetrix@symetrixaudio.com



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Before You Begin



| **What Ships in the Box** | **Getting Help** | **Optional Rackmount Accessories** | **Notational Conventions in this User Guide** | Operator Safety Summary | Equipment Markings

What Ships in the Box

- ☑ The 308 unit
- ☑ One PS-3 or PS-3E (export version) power supply
- ☑ This user's guide

Getting Help

If you have technical questions beyond the scope of this guide, please contact our Technical Services Group in the following ways:

T US customers **(425) 778-7728**

from 8:00 am to 4:30 pm Pacific Time Monday through Friday

F **(425) 778-7727**

tech@symetrixaudio.com

www.symetrixaudio.com

Optional Rackmount Accessories

MODEL	ITEM	DESCRIPTION
RM-3	19" Rackmount Tray	IU in height
FP-3	Filler Panel	Covers unused space when one 308 unit is mounted in the rack tray
PY-3	Y Power Cable	Connects a 308 with another 300 Series product to the same power supply
RC-3	Remote Control	For use with the 308 unit

Contact your dealer or Symetrix for purchasing information.

Notational Conventions in this User Guide

<i>Note</i>	Identifies information that needs extra emphasis. Generally supplies extra information to help you to better use the 308.
CAUTION	Identifies information that, if unheeded, may cause damage to the 308 or other equipment in your system.
WARNING	Identifies information that, if ignored, may be hazardous to your health or that of others.
CAPS	Controls, switches or other markings on the chassis of the 308.

Before You Begin



| What Ships in the Box | Getting Help | Optional Rackmount Accessories
 | Notational Conventions in this User Guide | **Operator Safety Summary** | **Equipment Markings**

Operator Safety Summary

Follow all warnings and instructions.
 Install in accordance with the manufacturer's instructions.

Power Source This product is intended to operate from a Symetrix PS-3 or PS-3E power supply.

Grounding The chassis of this product is grounded through the grounding conductor of the PS-3 or PS-3E power cord. To avoid electric shock, plug the power cord into a properly wired receptacle before making any connections to the product. A protective ground connection, by way of the grounding conductor in the power cord, is essential for safe operation. **Do not defeat the safety purpose of the grounding plug.** The grounding plug has two blades and a third grounding prong. The third prong is provided for your safety. When the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet.

Danger from Loss of Ground If the protective ground connection is lost, all accessible conductive parts, including knobs and controls that may appear to be insulated, can render an electric shock.

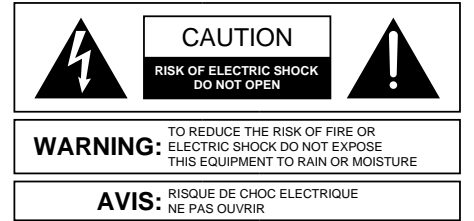
Proper Power Cord Use only the power cord and connector specified for the product and your operating locale. Use only a cord that is in good condition. Protect the power cord from being walked on or pinched, particularly at the plug, convenience receptacle, and the point where the cord exits from the apparatus.

Operating Location Do not operate this equipment under any of the following conditions: explosive atmospheres, in wet locations, in inclement weather, improper or unknown AC mains voltage, or if improperly fused. Do not install near any heat source such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Unplug this apparatus during lightning storms or when unused for long periods of time.

Stay Out of the Box To avoid personal injury (or worse), do not remove the product covers or panels. Do not operate the product without the covers and panels properly installed. Only use accessories specified by the manufacturer. Clean only with a damp cloth.

User-serviceable parts There are no user serviceable parts inside the 308. In case of failure, refer all servicing to the factory. Servicing is required when the 308 has been damaged in any way, such as when a power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Equipment Markings



SEE OWNERS MANUAL: VOIR CAHIER D'INSTRUCTIONS.
 No user serviceable parts inside. Refer servicing to qualified service personnel.
 Il ne se trouve à l'intérieur aucune pièce pouvant être réparée l'utilisateur.
 S'adresser à un réparateur compétent.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons. The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product (i.e., this user guide).

CAUTION

To prevent electric shock, do not use the polarized plug supplied with the unit with any extension cord, receptacle, or other outlet unless the blades can be fully inserted.



Product Summary

The Symetrix 308 VCA Volume Control/Loudness EQ provides remote level control and loudness EQ for engineered sound systems. You set the amount of loudness EQ compensation by adjusting rear panel EQ DEPTH trimpots. These circuits may be defeated entirely by turning the trimpots fully counter-clockwise. The 308 is a half-rack unit that fits on a shelf next to a mixer/amp or mounts in a rack with optional Symetrix RM-3.

Features

Zone Operation	Control the volume of a stereo signal in a single zone or mono signals in two zones.
Loudness EQ Circuit	Enhances program frequency response as volume is lowered.
Remote Level Control	Volume control by use of Symetrix RC-3 Remote Control, linear potentiometers* located up to 500 ft. from unit, or DC control voltages of 0 to 10 volts range*. Stereo signals may be adjusted by one control.
Audio Inputs & Outputs	Rear-panel Euroblock connectors accept balanced or unbalanced line-level signals.

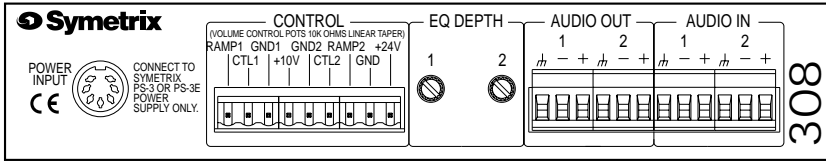
**user supplied*

Making Hardware Connections



| **Overview of Rear Panel Connectors and Controls** | Fast First-Time Setup
 | Controlling Channel Levels From a Potentiometer or Voltage Ramp | Controlling Channel Levels
 By a Variable Resistor | Unbalanced Connections | Input and Output Connector Wiring

Overview of Rear Panel Connectors and Controls



CONNECTION	CONNECTOR TYPE	WHAT IT DOES
POWER INPUT	7-pin DIN Connector	Accepts power only from Symetrix PS-3, PS-3E, or PY-3 power supply.
CONTROL	Euroblock Connectors	Input connections for remote controls.
PIN	ASSIGNMENT	
RAMP1	Ramp Output #1	Same control voltage applied to CTL1 appears here. Use it for controlling channel 1 of multiple 308 units.
CTL1	Control Input #1	Connect a ramp voltage or the wiper (W) of a 10k ohm linear taper potentiometer here for controlling channel 1 audio levels.
GND1	Control 1 Ground	Connect the ramp voltage ground or the CCW (low) terminal of the pot connected to CTL1 here.
+10V	+10 VDC Output	Provides the +10 VDC control voltage for 10k ohm linear taper potentiometer(s). Connect the pot terminal CW (high) here. If using a control pot for each channel, connect the CW terminals from two pots here.
GND2	Control 2 Ground	Connect the ramp voltage ground or the CCW (low) terminal of a 10k ohm linear taper potentiometer here for controlling channel 2 audio levels.
CTL2	Control Input #2	Connect a ramp voltage or the wiper (W) of the pot connected to GND2 here.
RAMP2	Ramp Output #2	Same control voltage applied to CTL2 appears here. Use it for controlling channel 2 of multiple 308 units.
GND	Ground	Provides ground connection for +24 VDC connections.
+24V	+24 VDC Output	Provides +24 VDC power for remote controls requiring it.

Making Hardware Connections



| **Overview of Rear Panel Connectors and Controls** | Fast First-Time Setup
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Overview of Rear Panel Connectors and Controls continues

CONNECTION	CONNECTOR TYPE	WHAT IT DOES
EQ DEPTH	Trimpots 1 and 2	<p>Controls the amount of loudness EQ compensation applied to their respective audio channels. They are set for maximum loudness contour from the factory (maximum mid-range attenuation). Can be independently adjusted. Once adjusted, the amount of EQ compensation follows the volume set by the remote controls.</p> <p>At full volume (+10V control voltage), the EQ response is flat and the 308 gain is at unity (the 308 will not add gain to your system).</p> <p>At lowered volume, the midrange response is reduced to a maximum of -15 dB @ 1 kHz, effectively boosting the bass and treble frequencies.</p> <p>Turning these trimpots counterclockwise lessens the amount of loudness EQ compensation.</p> <p>Turning these trimpots fully counterclockwise turns off the EQ DEPTH feature.</p>
AUDIO OUT	Euroblock Connectors	Provides balanced line-level audio output signals for their respective channels. Use 2-conductor shielded cable for all connections.*
AUDIO IN	Euroblock Connectors	Connect balanced line-level input signals to these connectors for their respective channels. Use 2-conductor shielded cable for all connections.*

***For balanced use**, the 308 follows AES standards for balanced audio circuits.

For unbalanced use, see in this section:

Unbalanced Connections

Input and Output Connector Wiring

Making Hardware Connections

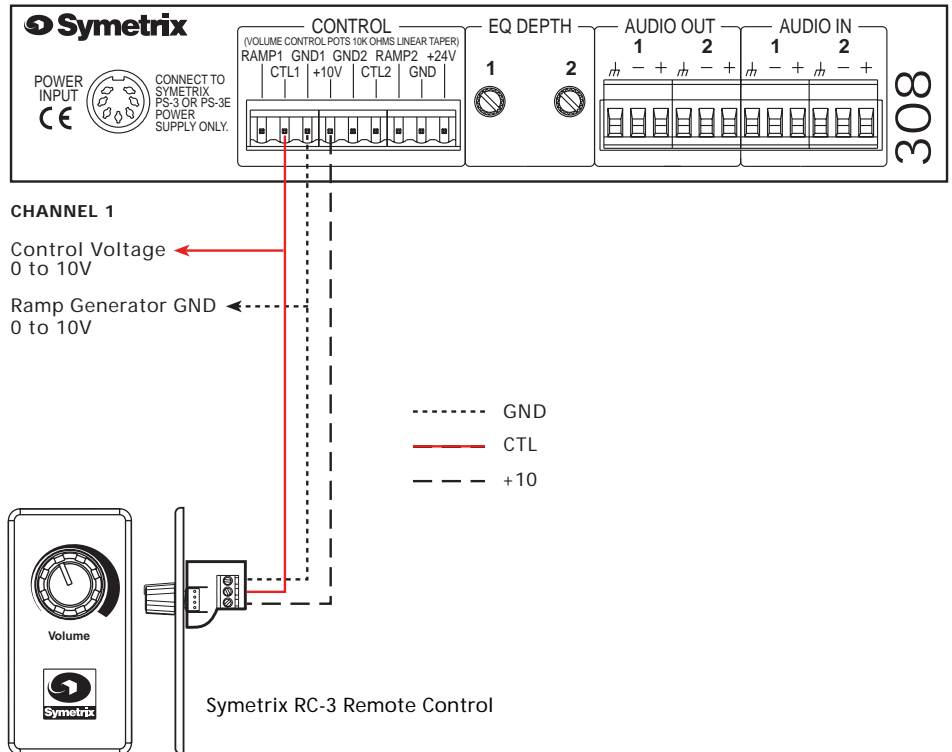


| Overview of Rear Panel Connectors and Controls | **Fast First-Time Setup**
 | Controlling Channel Levels From a Potentiometer or Voltage Ramp | Controlling Channel Levels
 By a Variable Resistor | Unbalanced Connections | Input and Output Connector Wiring

Fast First-Time Setup

- 1 Connect your line-level audio inputs and outputs to the AUDIO IN and AUDIO OUT Euroblock connectors.
 - 2 Connect your remote controls to the CONTROL Euroblock connectors. (If using a potentiometer, see in this section, Controlling Both Channels from a Single Potentiometer. If using a rheostat, see Controlling Channel Levels By a Variable Resistor.)
 - 3 Connect the external power supply to the 308 unit, then plug the power supply into an AC outlet.
 - 4 Apply line-level audio signal to the inputs.
 - 5 Adjust the remote controls to maximum level. Then set your system power amp levels to the desired maximum level. As you adjust the remote controls, the 308 passes audio signals. At full volume setting, the 308 is at unity gain.
 - 6 Turn down the remote controls to the lowest listening level you expect the system to be operated at.
 - 7 The EQ DEPTH trimpots are set for maximum loudness contour from the factory. At the lowest VCA setting, the EQ DEPTH is -15 dB @ 1k. Adjust the trimpots counterclockwise if you want less EQ response. To turn off this feature, turn the trimpots completely counterclockwise.
- Fast Setup is complete.

Basic Remote Setup Showing One Channel



SYMETRIX RC-3 REMOTE CONTROL PIN CONNECTION TO THE 308 PINS

RC-3 Pins	308 Channel 1 Pins	308 Channel 2 Pins
+10V	+10V	+10V
CTL	CTL1	CTL2
GND	GND1	GND2

RAMP/CONTROL VOLTAGE PIN CONNECTION TO THE 308 PINS

Device Pins	308 Channel 1 Pins	308 Channel 2 Pins
Ramp generator GND	GND1	GND2
Control voltage	CTL1	CTL2

Making Hardware Connections



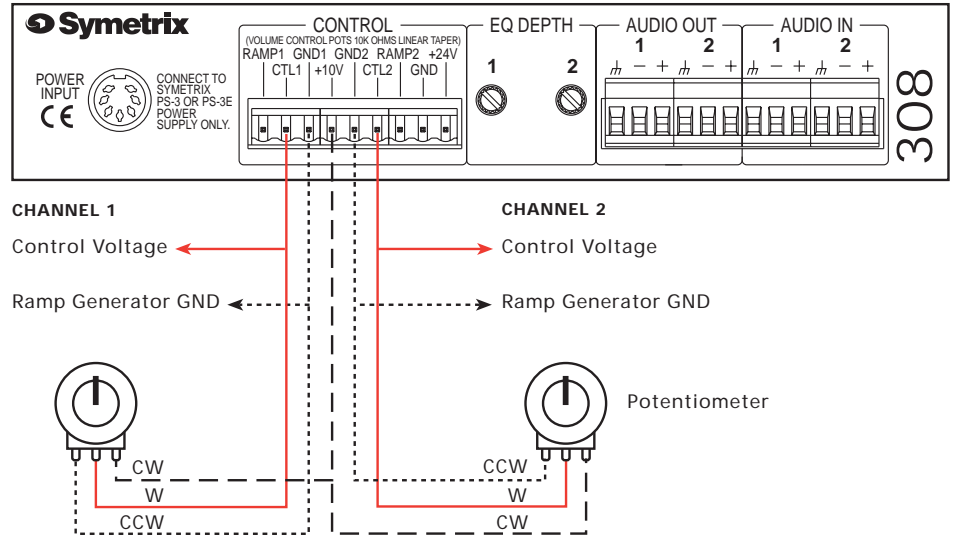
| Overview of Rear Panel Connectors and Controls | Fast First-Time Setup
 | **Controlling Channel Levels From a Potentiometer or Voltage Ramp** | Controlling Channel Levels By a Variable Resistor | Unbalanced Connections | Input and Output Connector Wiring

Controlling Channel Levels From a Potentiometer or Voltage Ramp

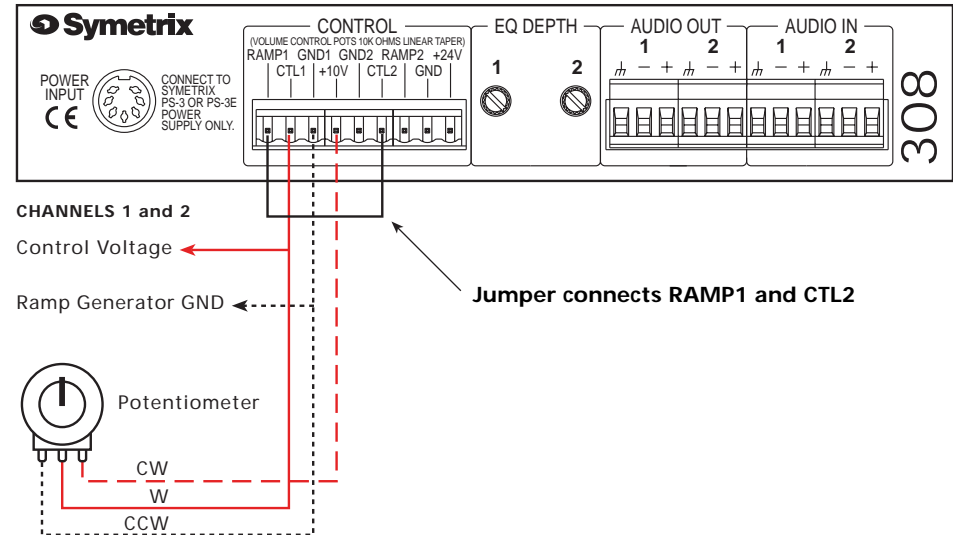
Setup for Remote Control

Connect the potentiometers to the CONTROL Euroblock connectors. Its pots must be 10k ohms linear taper, and the cable should be 2-conductor with shield. You can locate the potentiometers up to 500 feet from the 308 unit. Stereo signals can be adjusted by using one potentiometer.

To use two potentiometers to control each channel



To use one potentiometer to control both channels



POTENTIOMETER PIN CONNECTION TO THE 308 PINS

Potentiometer Pins	308 Channel 1 Pins	308 Channel 2 Pins
CW (high)	+10V	+10V
W (Wiper)	CTL1	CTL2
CCW (low)	GND1	GND2

Making Hardware Connections



| Overview of Rear Panel Connectors and Controls | Fast First-Time Setup
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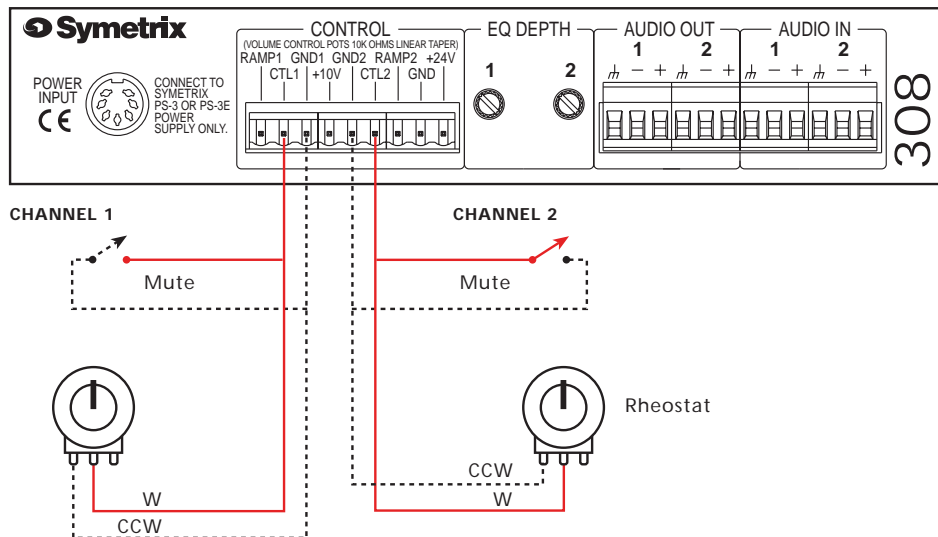
Controlling Channel Levels By a Variable Resistor (ie., a rheostat)

Setup for Remote Output Mute

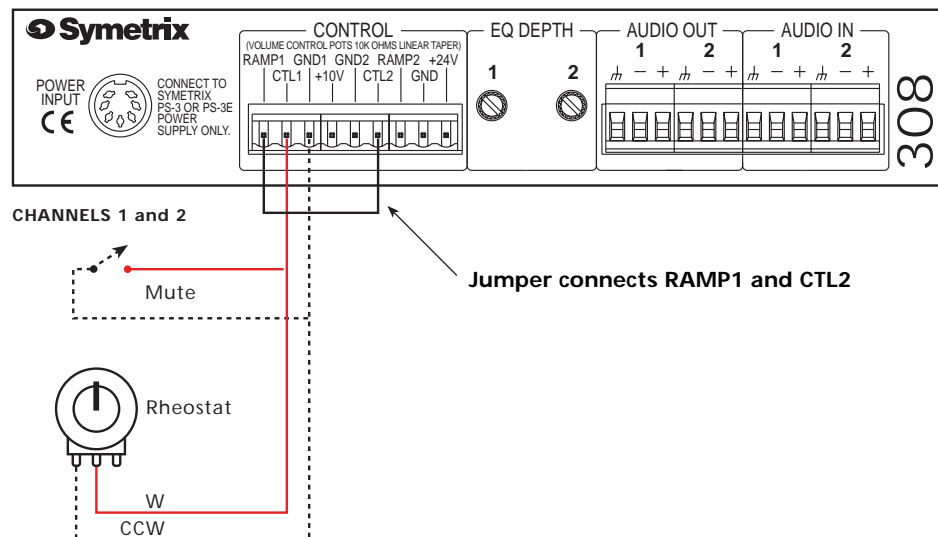
This setup provides compatibility with certain remote volume control panels. A resistance of 10K ohms results in unity gain. A resistance of 0 ohms (short circuit) results in maximum attenuation. You do not need a connection to the +10V terminal.

Use this setup when you need a remote output mute. Connecting a normally-open mute push button or relay contact in parallel with the control resistance results in maximum attenuation when the switch contacts are closed. The 308 is not damaged by such a connection.

To use two rheostats to control each channel



To use one rheostat to control both channels



RHEOSTAT PIN CONNECTION TO THE 308 PINS

Rheostat Pins	308 Channel 1 Pins	308 Channel 2 Pins
W (Wiper)	CTL1	CTL2
CCW (low)	GND1	GND2



Making Hardware Connections

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Unbalanced Connections

We do not recommend unbalanced input and output connections, but follow these instructions if you must do so.

Unbalanced Audio Output Connections

- 1 Connect the (+) terminal of the 308 to the (+ or high) of the unbalanced input connector.
- 2 Make no connection to the (–) terminal of the 308.
- 3 Connect the cable shield to the ground of the 308 and at the unbalanced input connector.

Notes

The output signal level of the 308 will be 6 dB lower when driving an unbalanced input without a transformer or matching interface device. To avoid this, use the Symetrix 303 Interface Amplifier or 307 Dual Isolation Transformer.

If you experience hum or noise, make sure that both the 308 and the device with the unbalanced input are grounded on the same AC mains circuit. If this is not the source of the noise problem, isolate the balanced output from the unbalanced input using the Symetrix 303 or 307.

Unbalanced Audio Input Connections

- 1 Connect the incoming signal (+ or high) to the (+) terminal of the 308.
- 2 Connect the incoming signal ground to the (–) terminal of the 308.
- 3 Connect the cable shield to the ground connection of the 308 only (leave the other end unconnected).

Notes

The 308 is designed to operate at the +4 dBu level. If the unbalanced output(s) of the device feeding the 308 is –10 dBV (semi-pro or consumer level), use the Symetrix 303 Interface Amplifier to convert the unbalanced source to a balanced signal, and boost the –10 dBV signal to the +4 dBu level.

If you experience hum or noise, make sure that both the 308 and the device with the unbalanced output are grounded on the same AC mains circuit. If this is not the source of the noise problem, isolate the balanced input from the unbalanced output using a Symetrix 303 or 307.

Making Hardware Connections



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Input and Output Connector Wiring

METHOD

CONNECTOR

CHANNEL

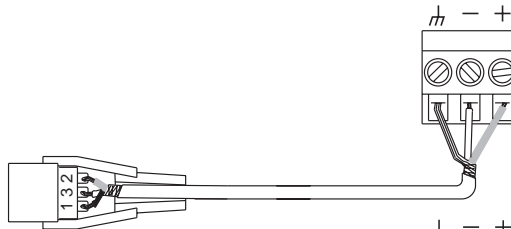
Balanced Terminal Strip



Input

Balanced Female XLR

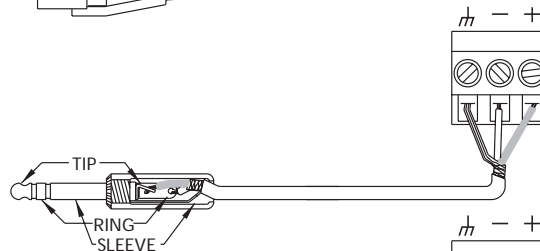
Pin 1 = Circuit Ground
 Pin 2 = High
 Pin 3 = Low



Input

Balanced TRS Plug

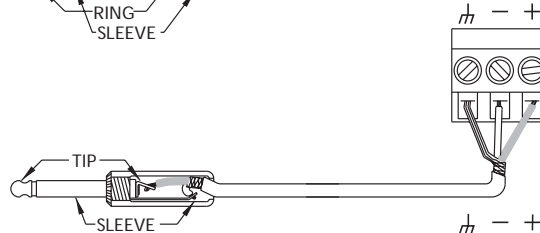
Tip = High
 Ring = Low
 Sleeve = Shield



Input

Unbalanced TS Plug

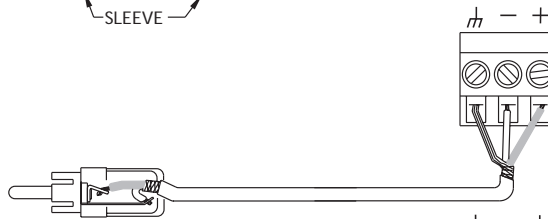
Tip = High
 Sleeve = Low + Shield



Input

Unbalanced RCA Plug

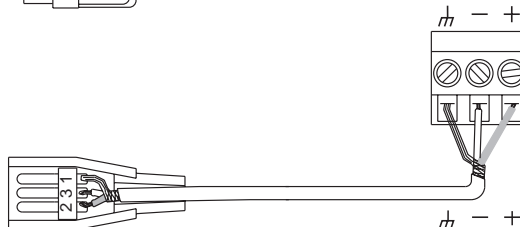
Tip = High
 Sleeve = Low
 Cable Shield = Not Connected



Input

Balanced Male XLR

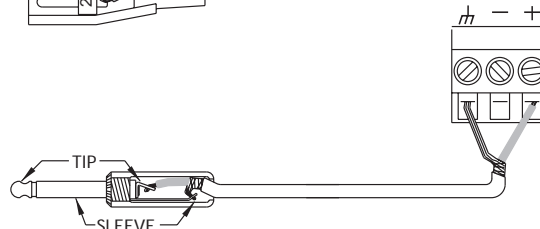
Pin 1 = Circuit Ground
 Pin 2 = High
 Pin 3 = Low



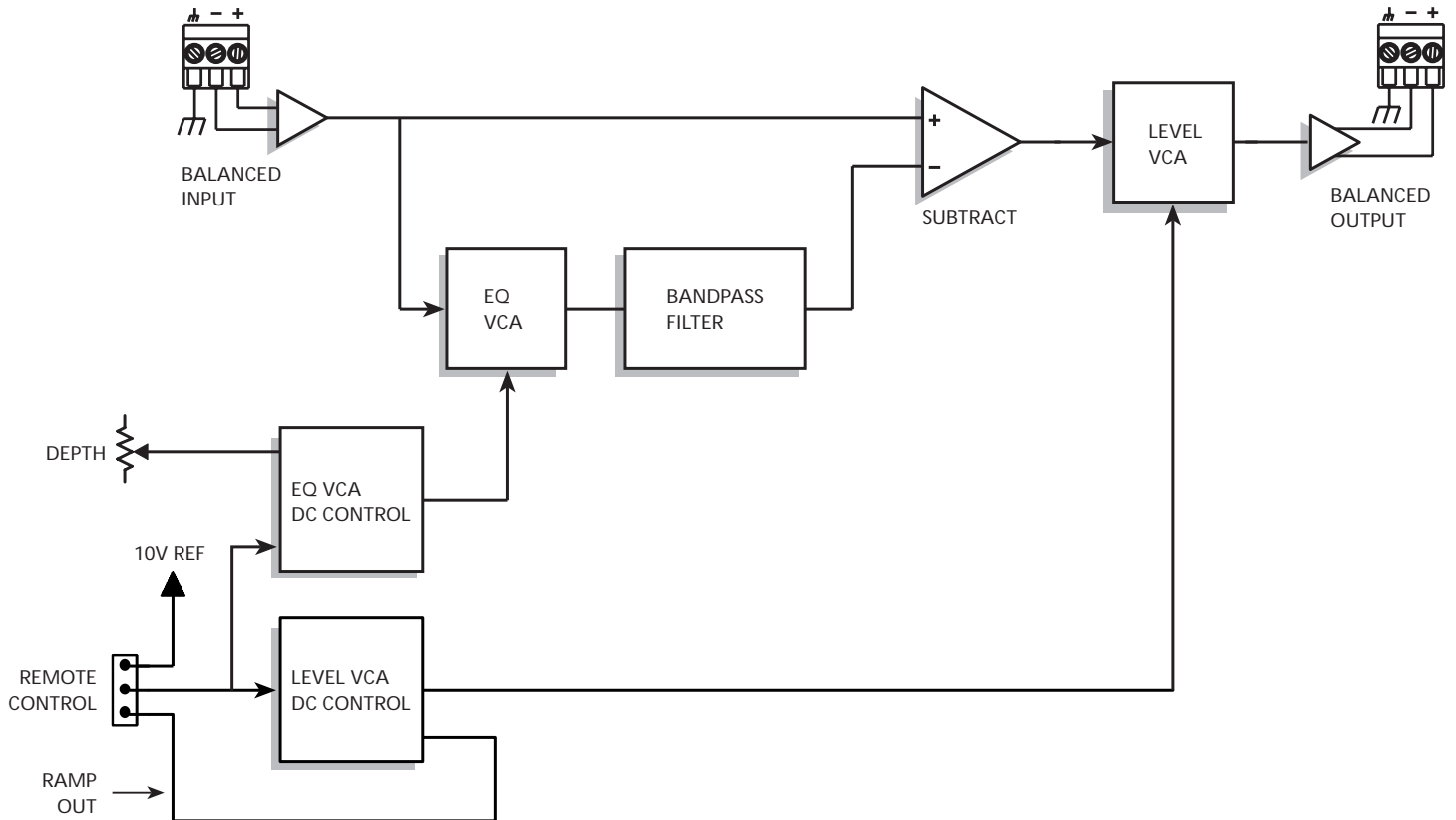
Output

Unbalanced TS Plug

Tip = High
 Sleeve = Shield
 Wire Low = Not Connected



Output





SYMPTOM	PROBABLE CAUSE/WHAT TO DO
No output	<p>Check cables and connections to see if:</p> <ul style="list-style-type: none"> • Inputs are driving outputs, and outputs are driving inputs. • That there is a signal from the source and that it is getting to the 308. <p>Check if unit is plugged in.</p>
Hum or buzz in output	<p>Check input and output connector wiring.</p> <p>Check for ground loop problem. Inspect related system equipment grounding to see that all system components are on the same AC ground.</p>
Distortion	<p>Check input signal.</p> <p>Check if line input signal may be too hot.</p> <p>If using a high setting for your maximum audio level, you may be overloading the input to your amplifier; lower the audio level.</p> <p>Check if something else is clipping in the signal chain.</p>
Noise (hiss)	<p>Check input signal levels. The 308 is intended to operate at or near "line" level (+4dBu is nominal). Make sure that the signal you are feeding to the 308 is a line level signal, not mic level.</p> <p>Check that all systems components are on the same AC ground.</p> <p>Check gain settings on upstream equipment. The system gain structure should be such that the 308 receives +4dBu nominal signal.</p>
No LED display	<p>Check if unit is plugged in.</p> <p>Verify that AC outlet works.</p>



Input/Output

Maximum Input Level	+20 dBu balanced, +20 dBu unbalanced
Maximum Output Level	+22 dBu balanced, +18 dBu unbalanced
Input Impedance	>20k ohms balanced, >10k ohms unbalanced
Output Impedance	200 ohms balanced, 100 ohms unbalanced
Input Common Mode Rejection	>40 dB

Performance Data

Frequency Response	20 Hz to 20 kHz +0, – 0.5 dB (with no equalization applied)
	20 Hz to 20 kHz +0, –1.5 dB (at unity gain with max EQ depth)
THD+N	<0.025% at unity gain, 0 dBu in/out
Residual Output Noise	– 95 dBu typical at unity gain
Gain Control	0 dB (unity) to – 65 dB
Equalization	–15 dB max @ 1 kHz

Analog Control

Control inputs accept any of	(a) 10k linear rheostat to ground (b) 10k linear potentiometer from +10 reference output to ground (c) 0 to 10 VDC control voltage (d) Symetrix RC-3 Remote Control
Gain	Unity at +10 VDC and max attenuation at 0 VDC
Ramp Out	Buffered duplicate of the Control In voltage
Auxiliary Power Out	+24 VDC \pm 10%, 100 milliamps max continuous load

Connections

Inputs, Outputs, Control Ports	Euroblock
AC Power In	7-pin DIN

Physical

Size (H x W x D)	1/2 rack unit 1.75 in. x 8.5 in. x 6.5 in. / 4.445 cm x 21.59 cm x 15.875 cm
Shipping Weight	4.5 lbs.

Electrical

Power Requirements	12W maximum, Symetrix PS-3 or PS-3E only
PS-3	115V, 60 Hz AC nominal
PS-3E	230V, 50 to 60 Hz AC nominal

In the interest of continuous product improvement, Symetrix, Inc. reserves the right to alter, change, or modify these specifications without prior notice.



The VCA volume control / loudness EQ shall provide two channels of remote level adjustment and automatic loudness EQ compensation for controlling a stereo signal in one zone or mono signals in two zones. There shall be a voltage controlled amplifier (VCA) in each channel controlled by either a 0 to 10 VDC ramp signal or by a 10k ohms linear taper potentiometer or other compatible remote control, such as the Symetrix RC-3. Potentiometers may be located up to 500 feet from the VCA volume controller. The loudness EQ will be flat at full volume and the output gain will be at unity. At lower volumes, the loudness EQ shall automatically effectively boost the bass and treble frequencies by lowering the midrange response. The maximum midrange attenuation will be -15 dB @ 1 kHz.

The VCA volume control / loudness EQ shall provide two balanced line-level audio inputs on Euroblock connectors. The input impedance shall be at least 20k ohms balanced, 10k ohms unbalanced. The maximum input level shall be +20 dBu balanced, +20 dBu unbalanced. There shall be two balanced line-level audio outputs on Euroblock connectors. The output impedance shall be 400 ohms balanced, 200 ohms unbalanced. The maximum output level shall be +22 dBu balanced, +18 dBu unbalanced.

Screwdriver adjustable trimpots shall be provided for selecting the amount of loudness EQ compensation for each channel. Nine inputs for remote control connections shall also be provided on Euroblock connectors. These inputs shall consist of: Ramp Out, Control In, Ground for each channel; +10 VDC Out; Ground; +24 VDC Out.

A front panel power indicator shall be provided.

The frequency response shall be +0, -0.5 dB, measured between 20 Hz and 20 kHz. THD+N shall be less than 0.025% measured at unity gain. Power consumption shall be 12W maximum.

The unit shall occupy half of the width of one rack space. The physical dimensions shall be 1.75 in. (H) x 8.5 in. (W) x 6.5 in. (D) / 4.445 cm (H) x 21.59 cm (W) x 15.875 cm (D).

The VCA volume control / loudness EQ shall operate by means of a Symetrix PS-3 connected to 115 VAC nominal, (95-130 VAC), 60 Hz or a Symetrix PS-3E connected to 230 VAC nominal, (165-255 VAC), 50 to 60 Hz.

The VCA volume control / loudness EQ shall be a Symetrix model 308 VCA Volume Control / Loudness EQ.



Following are the terms and limitations of the Symetrix warranty.

Warranty

Symetrix, Inc. expressly warrants to the original purchaser ("Buyer"), subject to the terms and conditions set forth below, that the Product will be free from defects in material and workmanship as a result of normal commercial use for one (1) year from the date of purchase.

Symetrix's warranty obligation is limited to the repair, replacement, or refund at Symetrix's sole discretion, of the part or parts of the Product which may thus prove defective in materials or workmanship within one year from date of purchase under normal use and which our examination discloses to our satisfaction to be thus defective, provided that Buyer gives Symetrix prompt notice of its warranty claim and satisfactory proof thereof.

Symetrix will make every reasonable effort to ensure that parts are available to support the repair of our products under warranty. In the event that a product or component part thereof becomes obsolete, unavailable or irreparable, Symetrix reserves the right to refund a prorated portion of the purchase price in full satisfaction of all warranty claims.

In order to serve you better we request that the Buyer shall, prior to shipping Product to Symetrix for warranty service, contact Symetrix and secure a Return Authorization Number that shall be included with the returned Product. This will facilitate our efforts to keep track of your Product and process your warranty repair as quickly as possible. Buyer will prepay all freight charges to ship the Product to Symetrix for warranty inspection and service. This warranty is subject to Symetrix's inspection of the Product at its facilities and, upon Symetrix's request, satisfactory proof of purchase (dated copy of original retail dealer's invoice.)

Symetrix reserves the right to effect repairs to the product with reconditioned components/parts. Products once repaired under warranty will be shipped to Buyer freight prepaid by Symetrix via United Parcel Service (surface) or any similar shipper, to any location designated by

buyer within the Continental United States. At Buyer's request and expense Product will be returned via airfreight. Outside the continental United States, repaired or replaced products will be returned freight collect.

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This limited warranty gives Buyer certain rights. Buyer may have additional rights under applicable law.



Servicing the 308

If you have determined that your unit requires repair services and you live *outside* of the United States, please contact your local Symetrix dealer or distributor for instructions on how to obtain service. If you reside in the U.S. then proceed as follows:

Before sending anything to Symetrix, contact our Customer Service Department for a return authorization (RA) number. The telephone number is (425) 78-7728 or email: tech@symetrixaudio.com

In-warranty Repairs

To get your Symetrix product repaired under the terms of the warranty:

1. Call us for an RA number.
2. Pack the unit in its original packaging materials.
3. Include your name, address, daytime telephone number, and a brief statement of the problem.
4. Write the RA number on the outside of the box.
5. Ship the unit to Symetrix, freight prepaid.

We do *not* accept freight collect shipments.

Repairs made in-warranty will cost you only one-way freight charges. We ll prepay the return (surface) freight.

If you send us your product in substandard packaging, we will charge you for factory shipping materials. If you don t have the factory packaging materials, please use an oversized carton, wrap the unit in a plastic bag, and surround it with bubble-wrap. Pack the box full of Styrofoam peanuts. Be sure there is enough clearance in the carton to protect the rack ears (you wouldn t believe how many units are returned with bent ears). We will return the unit in Symetrix packaging. Of course, if the repair is due to operator error, parts and labor will be charged. In any event, if there are charges for the repair costs, you will pay for the return freight. All charges will be COD unless you have made other arrangements (prepaid, Visa or Mastercard).

Out-of-warranty Repairs

If the warranty period has passed, you ll be billed for all necessary parts, labor, packaging materials, and freight charges. Please remember, you must call for an RA number before sending the unit to Symetrix.

Declaration of Conformity



We, Symetrix, Inc.

6408 216th St. SW, Mountlake Terrace, Washington USA

declare under our sole responsibility that the product:

308 VCA Volume Control/Loudness EQ

to which this declaration relates, is in conformity with the following standard:

EN 55103-2

Electromagnetic Compatibility—Product Family Standard for Audio, Video, and Entertainment Lighting Control Apparatus for Professional Use

Part 2: Immunity

PS-3E power supply complies with this code:

EN 60065

Safety Requirements for Mains Operated Electronic and Related Apparatus for Household and Similar General Use

The technical construction file is maintained at:

Symetrix, Inc.

6408 216th St. SW

Mountlake Terrace, WA 98037-2303

USA

The authorized representative located within the European Community is:

World Marketing Associates

P.O. Box 100

St. Austell, Cornwall, PL26 6YU, UK

Date of issue: May 30, 2000

Place of issue: Mountlake Terrace, Washington USA

Authorized signature:

Dane Butcher, President



Symetrix, Inc.

6408 216th St. SW

Mountlake Terrace, WA 98043

USA

Tel: (425) 778-7728

Fax: (425) 778-7727

Web site: <http://www.symetrixaudio.com>

Email: symetrix@symetrixaudio.com